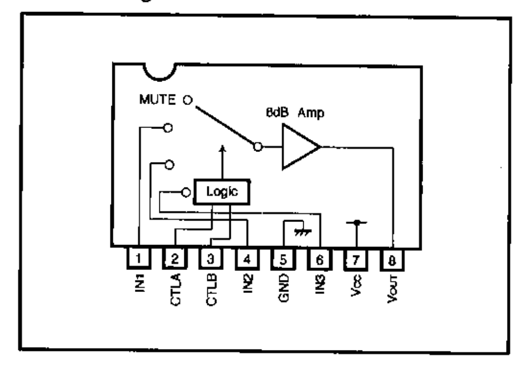
Video signal switcher
BA7611AN

The BA7611AN is a three-channel analog multiplexer with built-in mute and a 6dB amplifier. It designed for use in video cassette recorders. It features a large dynamic range, and wide operating frequency range, and has sync-tip clamp inputs which are ideal for switching video signals.

●Applications
Video cassette recorders and televisions

●Features
1)3-input / 1-output switches.
2)Built-in 6dB amplifier.
3)Built-in mute.
4)Sync-tip clamp inputs.
5)Wide operating supply voltage range (4.5V to 13.0V).
6)Low power consumption (50mW Typ.).
7)Excellent frequency characteristics (10MHz, 0dB Typ.).
8)Wide dynamic range (3.5V_{P-P} Typ.).
9)Low interchannel crosstalk (-65dB Typ., f=4.43MHz).

●Block diagram



●Truth table

CTL - A	CTL - B	OUT
L (OPEN)	L (OPEN)	IN1
L (OPEN)	H	IN2
H	L (OPEN)	IN3
H	H	MUTE

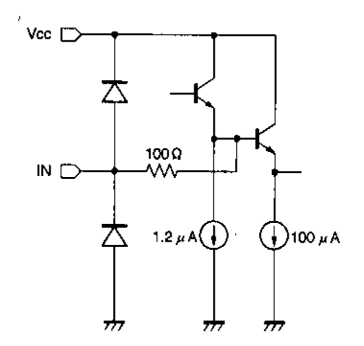
●Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Power supply voltage	Vcc	13.5	V
Power dissipation	Pd	900 *	mW
Operating temperature	Topr	−25~75	℃
Storage temperature	Tstg	−55~125	℃

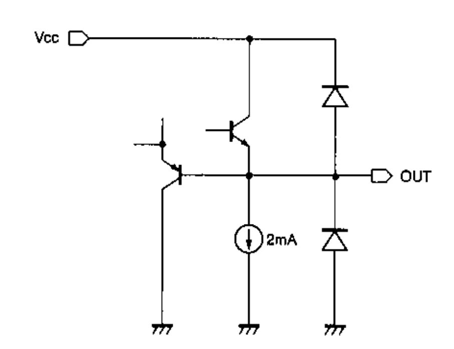
* Reduced by 9mW for each increase in Ta of 1°C over 25°C.

●Equivalent circuits

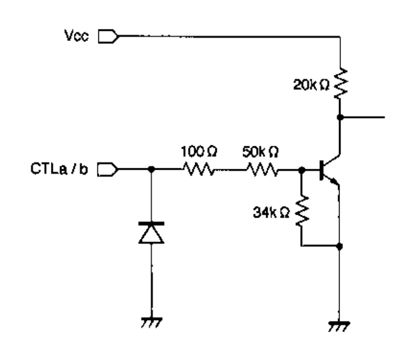
CLUMP INPUT



OUTPUT



CTLa / CTLb



Note:
Input bias current 1 μA[Typ.]
Output impedance 20 Ω [Typ.]

●Electrical characteristics (Unless otherwise specified Ta=25℃ and Vcc=5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Test Circuit
Operating voltage	V_{CC}	4.5	—	13.0	V		Fig.4
Circuit current	I_{CC}	—	10.5	15.5	mA		Fig.4
Maximum output level	V_{om}	3.0	3.5	—	V_{P-P}	f=1kHz, THD=0.5%	Fig.4
Voltage gain	G_V	5.5	6.0	6.5	dB	f=1MHz, V_{in}=1.0V_{P-P}	Fig.4
Interchannel crosstalk	C_T	—	−65	—	dB	f=4.43MHz, V_{in}=1.0V_{P-P}	Fig.4
Frequency characteristic	C_f	−3.0	0	1.0	dB	f=10MHz / 1MHz, V_{in}=1.0V_{P-P}	Fig.4
CTL pin switch level A	V_{TH-A}	1.0	2.0	3.0	V		Fig.4
CTL pin switch level B	V_{TH-B}	1.0	2.0	3.0	V		Fig.4

◎ Not designed for radiation resistant.

●Electrical characteristic curves

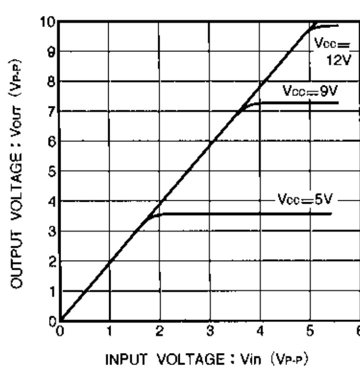


Fig. 1 Vin vs. Vout(f = 1kHz)

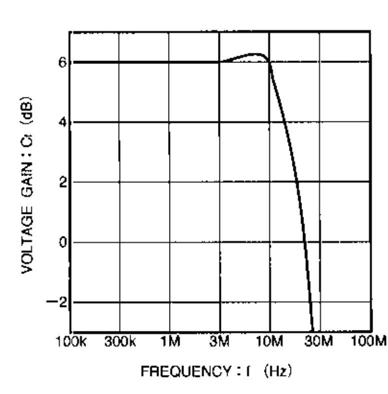


Fig. 2 Frequency characteristic

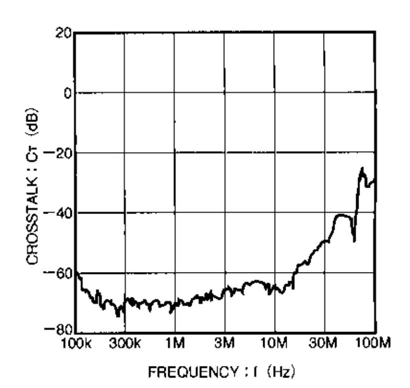


Fig. 3 Interchannel crosstalk

●Measurement circuit

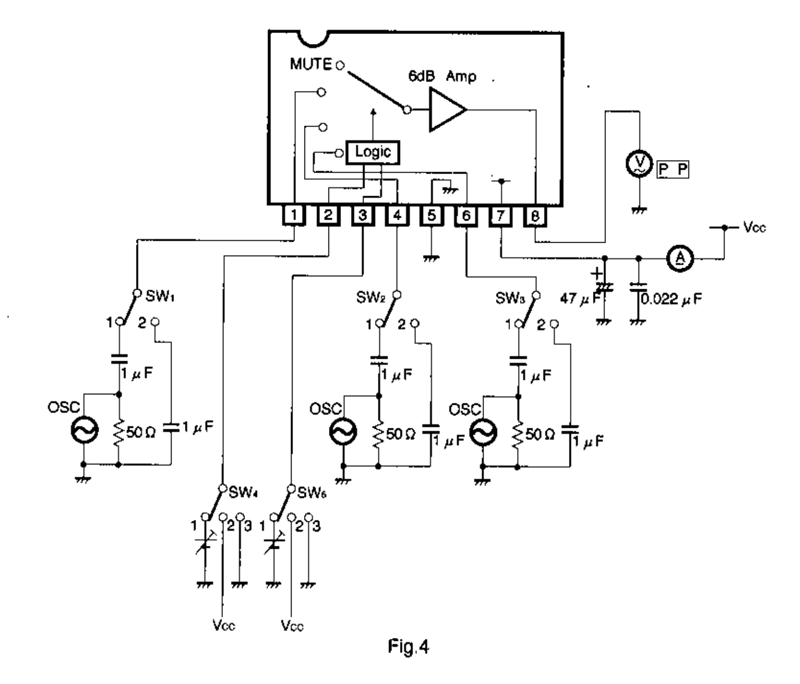


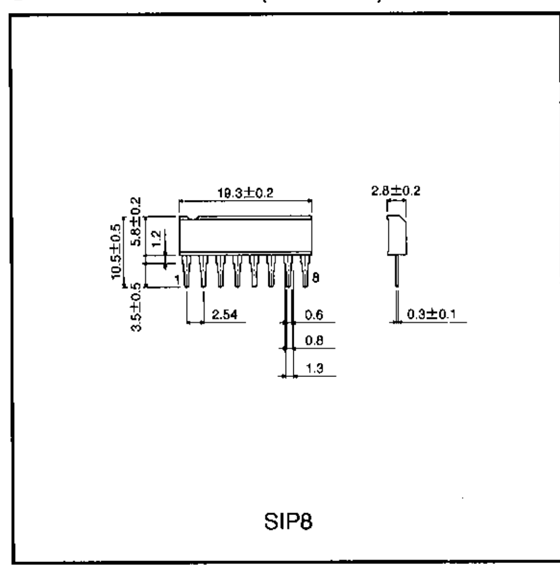
Fig.4

●Measurement conditions

Parameter		Symbol	Switch settings SW1	SW2	SW3	SW4	SW5	Measurement method
Current consumption		I_{CC}	2	2	2	2	2	Ammeter
Maximum output level	I_{N1}	V_{om}	1	2	2	3	3	f=1kHz, THD=0.5% Note 1
	I_{N2}	V_{om}	2	1	2	3	2	
	I_{N3}	V_{om}	2	2	1	2	3	
Voltage gain	I_{N1}	G_V	1	2	2	3	3	f=1MHz, V=1V_{P-P} Note 2
	I_{N2}	G_V	2	1	2	3	2	
	I_{N3}	G_V	2	2	1	2	3	
Interchannel crosstalk	IN1→IN2	C_T	1	2	2	3	2	f=4.43MHz V=1V_{P-P} Note 3
	IN1→IN3	C_T	1	2	2	2	3	
	IN1→MUTE	C_T	1	2	2	2	2	
	IN2→IN3	C_T	2	1	2	2	3	
	IN2→MUTE	C_T	2	1	2	2	2	
	IN3→MUTE	C_T	2	2	1	2	2	
Frequency characteristic	IN1	G_f	1	2	2	3	3	f=10MHz f=1MHz V=1V_{P-P} Note 4
	IN2	G_f	2	1	2	3	2	
	IN3	G_f	2	2	1	2	3	
CTL pin switching level	CTLa	V_{TH}	2	2	1	1	3	Note 5
	CTLb	V_{TH}	2	1	2	3	1	

Note 1: Connect a distortion meter to the output, and input a f = 1kHz sine wave. Adjust the input level until the output distortion is 0.5%. This output voltage at this time is the maximum output level V_{om} (V_{P-P}).
Note 2: Input a 1V_{P-P}, 1MHz sine wave. The voltage gain is given by $G_V = 20 \log V_{OUT}/V_{IN}$).
Note 3: Input a 1V_{P-P}, 4.43MHz sine wave. The interchannel crosstalk is given by $C_T = 20 \log (V_{OUT}/V_{IN})$.
Note 4: Input 1V_{P-P}, 1MHz and 10MHz sine waves. The frequency characteristic is given by $G_f = 20 \log (V_{OUT} (f = 10MHz)/V_{IN} (f = 1MHz))$.
Note 5: Input a 1V_{P-P}, 1MHz sine wave. Reduce the CTL pin voltage from V_{CC}. The CTL pin switching level (V_{TH}) is the CTL pin voltage at which the V_{OUT} level drops below 20mV_{P-P}.

●External dimensions (Units: mm)



SIP8